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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,803

04/01/2004

Kazuo Tada

01-627

5304

23400

7590

07/28/2006

POSZ LAW GROUP, PLC
12040 SOUTH LAKES DRIVE
SUITE 101
RESTON, VA 20191

EXAMINER

NORRIS, JEREMY C

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,803

Applicant(s)

TADA ET AL.

Examiner

Jeremy C. Norris

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2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 14-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, claims 1-13, in the reply filed on June 6, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6, 8, 9, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2002/0189859 A1 (Shiraishi)

Shiraishi discloses, referring primarily to figures 1A-H, a multi-layer printed circuit board comprising: a resin substrate including a plurality of laminated thermoplastic resin

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films (23, [0038]); a thin film resistor (33) embedded in the resin substrate; and an electrode (32) disposed on the thin film resistor, wherein the thermoplastic resin film includes a conductive pattern (pattern 22 directly above and to the left of resistor 33 as seen in figures 1F-H) made of metallic film ([0038]) and wherein the conductive pattern disposed over or under the electrode covers a periphery of the electrode (figure 1H) [claim 1], wherein the resin substrate includes a plurality of thermoplastic resin films (23) laminated and bonded together [claim 6].

Similarly, Shiraishi discloses, referring primarily to figures 1A-2, a multi-layer printed circuit board comprising: a resin substrate including a plurality of laminated thermoplastic resin films (23, [0038]); and a thin film resistor (33) embedded in the resin substrate, wherein the thermoplastic resin film includes a conductive pattern (pattern 22, directly above and to the left of resistor 33 as seen in figure 2), which is disposed on a surface of the resin film and made of metallic film ([0038]), wherein the resin substrate includes a hole (50) filled with a conductive material ([0080]), and wherein the thin film resistor is directly connected to the conductive pattern disposed over or under the resistor through the conductive material in the hole (figure 2) [claim 8], wherein the thin film resistor is covered with the conductive pattern disposed over or under the resistor (figure 2) [claim 9], wherein the resin substrate includes a plurality of thermoplastic resin films (23) laminated and bonded together [claim 12], wherein the conductive pattern prevents a fluidized thermoplastic resin from moving toward the thin film resistor when a thermoplastic resin composing the thermoplastic resin film is fluidized (the electrode 22

directly above and to the left of resistor 33 as seen in figure 2, blocks material from above said electrode from moving toward the resistor) [claim 13].

Claims 1-3, 6, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2005/0186768 A1 (Sugaya).

Sugaya discloses, referring primarily to figure 25 (see [0433]), a multi-layer printed circuit board comprising: a resin substrate (2706) including a plurality of laminated thermoplastic resin films (2706 comprises epoxy resin film, a known thermoplastic resin film; [0433] and [0568]-[0573]); a thin film resistor (2703) embedded in the resin substrate; and an electrode (the electrode to the left of reference electrode 2702 as seen in figure 25) disposed on the thin film resistor, wherein the thermoplastic resin film includes a conductive pattern (electrode directly under capacitor 2704 as seen in figure 25) made of metallic film ([0586]-[0588]) and wherein the conductive pattern disposed over or under the electrode covers a periphery of the electrode (figure 25) [claim 1], wherein the thin film resistor is covered with the conductive pattern disposed over or under the resistor (figure 25) [claim 2], wherein the thin film resistor is covered with the conductive pattern disposed on a side (the right side of the resistor as seen in figure 25) opposite to the electrode (the electrode to the left of reference electrode 2702 as seen in figure 25) across the thin film resistor [claim 3], wherein the resin substrate includes a plurality of thermoplastic resin films laminated and bonded together [claim 6], wherein the conductive pattern prevents a fluidized thermoplastic resin from moving toward the thin film resistor when a thermoplastic resin composing the

thermoplastic resin film is fluidized (the electrode directly under capacitor 2704 as seen in figure 25, blocks material from the layer directly pointed to by reference character 2706 from moving toward the resistor) [claim 7].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4, 5, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0195420 A1 (Obert).

Shirashi discloses the claimed invention as described above except Shirashi does not specifically state that the thin film resistor has a thickness equal to or thinner than 10 μm [claims 4, 10] nor that the thin film resistor has the thickness equal to or thinner than 1 μm [claims 5, 11]. However, it is well known in the art to form thin film resistors with a thickness less than 1 μm as evidenced by Obert ([0044]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the thickness of the thin film resistor in the invention of Shirashi to be less than 1 μm as is known in the art and evidenced by Obert. The motivation for doing so would have been to provide the desired amount of resistance.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following documents disclose embedded resistors:

US 4,807,746	Klaser,
US 6,021,050	Ehman et al,
US 6,734,542 B2	Nakatani et al.,
US 6,889,155 B2	Ogino et al..

The following documents teach that epoxy resins are thermoplastic resins:

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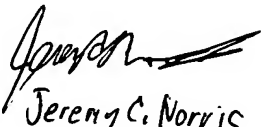
US 4,947,531 Brisson (col. 1, lines 10-30),
US 6,489,668 B1 Oda et al. (col 1, lines 10-20),
US 6,814,893 B2 Takezawa et al. (col. 19, lines 40-60),
US 6,906,257 B2 Saccomanno et al. (col. 15, lines 15-35).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCSN


Jeremy C. Norris
Patent Examiner
Technology Center 2800